Harnessing the Power of Data


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BY SUSAN REESE

The amount of and demand for high-quality, accessible education data are increasing, according to the Data Quality Campaign, which is managed by the National Center for Educational Accountability and supported by the Bill and Melinda Gates Foundation. Some of this increase is due to new technology that has made the collection and analysis of data easier and more efficient, and some is due to the demands for greater accountability, such as required by No Child Left Behind. There are also growing numbers of stakeholders both within and outside the educational system calling for better information about our children's educational experience, such as how it prepares them for future careers and postsecondary education.

Data can be used to document needs for improvement and as a tool for reform, but it can also be used to demonstrate effectiveness. While many career and technical education (CTE) programs have anecdotes to share about the success of their graduates, increasingly there is a call for more than anecdotal evidence. The demand is for hard, cold facts—data to back up the need for, and success of, career-tech. Richard Lynch, professor emeritus and former director of the School of Leadership and Lifelong Learning at the University of Georgia, notes, "It is often estimated that less than one-fourth of one percent of education budgets are ever spent on research and innovation. Contrast this with five to 15 percent often cited in most industry sectors such as engineering, medicine, health care and business. Nearly all serious education policy groups and reformers at local, state and national levels call for more substantive infusion of funds for education research and evaluation studies."

Lynch devoted a year of his life to collecting data and writing his paper, *New Directions for High School Career and Technical Education*. When asked why he was willing to make such a large commitment, Lynch provides this answer. "The assistant secretary of education at the time asked me to spend the year in D.C. and write a 'vision' or 'direction' paper for high school 'vocational education.' This was in response to the policy-level question she was constantly being asked: 'What is (or should be) the contemporary role, purposes, structure and value of high school CTE?' I think, in effect, so many thought high school CTE should be eliminated. Trish McNeil, the assistant secretary, didn't want to do so without, well…., data or good information or perspective." So data can be a pretty powerful tool, and sometimes that power can be harnessed and used to make a strong case for CTE.

Outside Sources

There are two main ways that schools and districts are utilizing data in making the case for CTE. The first is to use information that has been gathered by other organizations. The search should begin with our own organization's Web site. On the CTE Information and Research page of **www.acteonline.org**, there is data and research "that supports better understanding of today's CTE systems, programs and services, and highlights the potential that CTE provides students related to technical skills, academic achievement and career guidance."

The ACTE site offers a CTE Effectiveness Fact Sheet, a collection of promising programs and practices, and a link to the CTE Research Clearinghouse. ACTE is the dissemination arm of the National Research Center for Career and Technical Education (**www.nrccte.org**), an excellent source for data on best practices in CTE.

Some of the benefits of CTE have been recognized by organizations such as the National Dropout Prevention Center, which cites career academies, tech prep, cooperative education, school-based enterprises, internships and apprenticeships, job shadowing, mentoring and career guidance as strategies used for keeping students in school. The Center for Occupational Research and Development is a source for positive information about tech prep, and the smaller-school initiatives of the Bill and Melinda Gates Foundation often provide evidence to support the benefits of the career academy model. The Southern Regional Education Board has also gathered data on best practices and the benefits of high-quality CTE programs.

Lynch is among those who say that at this point in time, it is better not to mandate collecting more data from teachers, especially if the sole purpose seems to be for state or federal report purposes, but rather, we should use the data that we already collect from and about students and teachers to help improve CTE where warranted.

"I often chuckle at the quip by Jeffrey Wayman, a researcher from Johns Hopkins Center for Social Organization of Schools," says Lynch of the comments that appeared in the December 14, 2005, issue of *Education Week*. "Wayman said that data about students too often 'languish in central repositories used for little but accountability reporting.' More succinctly, 'Data have been like a roach motel… [they] check in, they just don't check out.'"

Lynch believes that the multitude of quantifiable data ought to be tabulated and analyzed at the local level either before and/or in tandem with it being sent off to the next level. "This refers mostly to number crunching at the individual and class (or program) level: student enrollments, demographics on students, programs of study, standardized test scores, socio-economic status, attendance record, subjects completed, grades, teacher qualifications, and on and on," he explains. "The data currently being collected and in student files can provide to teachers and administrators objective information to help plan instruction based on identified and objectively analyzed data."

Lynch adds that these data can also be correlated with data that are collected concomitantly or as a follow-up sometime at a later point in students' education or employment. "For example, although challenging often due to turf protection, high school student-based data can be bumped up against labor market data and/or postsecondary agency data being collected simultaneously or later," he notes. "In Georgia, this is how we were able to follow up and determine outcomes of dual enrollment on students' employment and postsecondary education."

Internal Sources

The Oklahoma Department of Career and Technology Education is often cited as a model for statewide CTE, and not only does the state department have positive information to share, but some of the technology centers themselves collect and disseminate data about their success.

Metro Technology Centers issues an annual Progress Report to Stakeholders listing its organizational strategies and how they have been addressed. In its 2007 report, Metro Tech cites data such as the pass rates of its students for licensures/certification competency tests, which included 100 percent passing rates for five areas, with the remaining three areas having passing rates of 96 percent, 95 percent and 86 percent. The report documents positive student placement rates. The data also showed five-year increases in the number of students participating in cooperative agreements, college hours earned through cooperative agreements and student completion/retention rates. The total enrollment at Metro Tech has grown by 109 percent over a six-year period, but there has also been growth in another important area—student satisfaction. Student surveys as well as surveys of the school's advisory committee found

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high rates of satisfaction among both students and business and industry partners.

"Metro Technology Centers' dramatic improvement in key measures (completion/retention, positive placement and licensure/pass rates) is directly attributable to our future picture and desired effects," says Metro Tech Superintendent James Branscum. "Our goal is continuous improvement in all result categories. This requires 'liquid planning' that allows strategy to change as does our global society—quickly. MTC uses the Baldrige business model to plan strategy because it is non-prescriptive, customer focused and results oriented."

Another Oklahoma Technology Center, Francis Tuttle, issues an annual report, which notes that, over the last five years, Francis Tuttle has averaged a 94.7 percent positive student placement, defined as employment in the career area of training, service in the military, continuing education, and/or employment in another field. According to the Francis Tuttle 2007 Annual Report, 78.7 percent of high school students who completed a program at Francis Tuttle were continuing their education in 2007.

"Collecting and analyzing data paves the way for effective decision-making and helps to assure the taxpaying public that we are serving as good stewards of their funds and making decisions in their best interests," says Francis Tuttle CEO/ Superintendent Kay Martin. "We have always encouraged students to continue their education, as data indicates that all education enhances earnings potential, aside from benefiting their families and the communities in which they live. We have also found that many students come to us following completion of four-year (and advanced) degrees."

Wisconsin's Gateway Technical College (GTC) has learned about the power of data and has made very effective use of the positive statistics it has gathered. For example, the 2007 Graduate Follow-up Study found that 95 percent of graduates are satisfied with their Gateway training, 92 percent found jobs within six months of graduation, and 67 percent are employed in their field of training.

"It is critical to use program and student data to engage community support and build common understanding," says Gateway president—and current ACTE president—Bryan Albrecht.

GTC serves the counties of Kenosha, Racine and Walworth, providing education, training, leadership and technological resources to ensure economic growth and meet the changing needs of the area's students, employers and communities. It is providing those services very effectively—and has the data to prove it. The Gateway Technical College Foundation commissioned a study by CCbenefits, a company that provides economic impact analysis on the benefits generated by community and technical colleges in the United States and Canada. The study tracks four types of benefits: regional economic benefits (local job and income formation); student perspective (higher earnings captured by exiting students); taxpayer perspective (a collection of social benefits and avoided costs); and investment analysis (the return to taxpayers for their college support).

The study, "The Economic Contribution of Gateway Technical College," found that, "The GTC Service Area economy owes roughly $401.4 million of its regional income to GTC operations and past student productivity effects." Now that is a very impressive figure and certainly powerful enough to make students, employers and community leaders take notice. According to the study, "For every credit completed, GTC students will, on average, earn $124 more per year each year they are in the workforce. Alternatively, for every full-time year they attend they will earn an additional $3,721 per year." This makes GTC a very good investment for students, who will earn an 18 percent rate of return on their investments of time and money.

State and local government spent $49.5 million in support of GTC during the year that was analyzed by the study, but the data shows that this was a good investment for taxpayers. In addition to their increased earnings cited above, those with higher education are less likely to smoke, abuse alcohol, draw welfare or unemployment benefits, or commit crimes. "This translates into associated dollar savings (avoided costs) amounting to some $17 per credit per year, counted as an indirect benefit of GTC education," notes the study. "When aggregated across all exiting students, the State of Wisconsin will benefit from $2.1 million worth of avoided costs per year, each year that the students are in the workforce."

All in all, the report presents a powerful case for the benefits of CTE programming provided by the college.

As Albrecht notes—and his statements are supported by the data collected by his school—"The impact of CTE has multiple dimensions, including traditional measures such as academic achievement, retention and graduation rates, and student interest and engagement, as well as broad community growth measures like increased employment opportunities, increased personal income and having the ability to add value to personal property by CTE graduates, and reduced social services costs associated with under or unemployment rates in a community.

> "Without valid and reliable data we are simply flying by the seat of our pants, and no serious, objective-minded policy wonk is going to pay any attention to our pleas for support."—Professor Richard Lynch.

The value of CTE is best demonstrated by comprehensive community impact measures in addition to the highly valued educational attainment measures we are accustomed to."

Using Data Wisely

Lynch advises that, "Quantifiable data, important as it may be, should never replace the wisdom and judgment of teachers, other practitioners and parents. Good teachers know students well and know how students learn; their collective wisdom can and should be used in powerful ways to improve and strengthen CTE."

Lynch also believes that CTE needs to take the lead to expand the conversations with policy groups, legislators and education reform advocates about what it means to achieve. "Student achievement is far, far more than a score on a norm- or even criterion-referenced standardized test," he adds. "Further policy edicts just must include the measurement of student achievement through successful assessment of student work on age-appropriate, complex projects, occupational certifications earned, state licenses awarded, and other demonstrable measures of competence. Other factors might also include attendance, graduation, transition into employment and/or postsecondary education, scores on standardized tests that measure real-world skills, assessment of soft skills, and student organization competitions. Overall, I think it only just and fair to showcase student achievement through a portfolio of student work and accomplishments, and yes, this can include scores on standardized tests of academic achievement."

Over the years, Lynch has noted that many fine CTE administrators and teachers are cautious or defensive about disseminating any data, especially of the accountability type that state and federal agencies have called for, and he thinks that this may be the cause of data tending to languish in those repositories as noted by Wayman. "I think such fear or hesitancy of releasing data is unfortunate, as it is pretty difficult to improve if the data aren't known or transparent," he adds. Instead he would encourage those who have concerns about disseminating such data to try to better understand what is being asked of the data and, hopefully, be involved in setting the objectives of the data collection.

"Conceptually, it is pretty simple," Lynch explains. "What is it you need to know? How will you come to know it? How will you know what you got? And then use the data accordingly; that is, to either advocate for more and improved CTE and/or to make the modifications that are warranted."

He sums it up this way: "Without valid and reliable data—including that triangulated through qualitative measures and the wisdom of teachers—we are simply flying by the seat of our pants, and no serious, objective-minded policy wonk is going to pay any attention to our pleas for support." T

Exploring Sources of Data

For more information about harnessing the power of data to make a case for the benefits of career and technical education, here are some sources to explore.

Association for Career and Technical Education (**www.acteonline.org**)
Information and Research (**www.acteonline.org/content.aspx?id=206**)

National Research Center for Career and Technical Education
www.nrccte.org

Center for Occupational Research and Development
www.cord.org

National Dropout Prevention Center
www.dropoutprevention.org

The Bill and Melinda Gates Foundation
www.gatesfoundation.org

Data Quality Campaign
www.dataqualitycampaign.org

Southern Regional Education Board
www.sreb.org

About the Schools

To learn more about the schools featured in this story, visit their Web sites.
Gateway Technical College
www.gtc.edu

Metro Technology Centers
www.metrotech.org

Francis Tuttle Technology Center
www.francistuttle.com

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A Perkins Challenge:
Assessing Technical Skills in CTE

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BY JAMES R. STONE III

Current federal law requires states to develop performance measures and data collection systems for the four required core indicators, including technical skill attainment for secondary and postsecondary levels. These measures must be reliable and valid. Perkins IV requires states to use state-established, industry-validated career and technical skill standards; but few of these exist and states have largely been compelled to rely on career and technical education (CTE) course completion, grade point averages (GPA) in CTE courses, or administrative data.

Challenges

The first challenge posed by the Perkins requirement is defining a ***technical skill***. How do we parse technical skills from non-technical skills? The most common approach relates technical skills to skill standards which are "performance objectives and competencies required by a specific occupation, as specified by experts within that particular industry" (Center for Remediation Design, 1991), and "performance specifications that identify the knowledge, skills and abilities an individual needs to succeed in the workplace." According to the National Skill Standards Board, skill standards "…consist of two components: (1) a description of the responsibilities needed for competent performance, and (2) a description of knowledge and skills necessary to carry out these responsibilities" (2000).

A second challenge is ***measurement***. True performance assessments, sometimes known as authentic assessment, require a student to perform. Performing a task, the process of doing, rather than selecting an answer from a ready-made list (circle "D" for "none of the below") is a hallmark of performance assessments. The U.S. Congress Office of Technology Assessment defines performance assessment as "any form of testing that requires a student to create an answer or a product that demonstrates his or her knowledge or skills." This requires experienced raters who judge the quality of the student's performance against established criteria; consider driver certification tests or Olympic events. Closer to home,